

### **REMARKS**

Favorable reconsideration, reexamination, and allowance of the present patent application are respectfully requested in view of the foregoing amendments and the following remarks.

#### **Objection to the Abstract**

At page 2 of the Office Action, the Abstract was objected to because it is in two paragraphs and allegedly misused the word “means”. While the use of the term “means” in the Abstract was more colloquial, Applicant has nevertheless deleted it; the Abstract has also been reduced to a single paragraph. Applicant therefore respectfully requests reconsideration and withdrawal of this objection.

#### **Rejection under 35 U.S.C. § 112, second paragraph**

In the Office Action, beginning at page 3, Claims 1-6 were rejected under 35 U.S.C. § 112, second paragraph, as reciting subject matters that allegedly are indefinite. Applicant respectfully requests reconsideration of this rejection.

While Applicant disagrees with the negative view of the well-known terms “SCONO<sub>x</sub>” and “SCOSO<sub>x</sub>” expressed in the Office Action, Applicant has elected to moot the issue by cancelling the terms.

For at least the foregoing reasons, Applicant respectfully submits that Claims 1-6 fully comply with 35 U.S.C. § 112, second paragraph, and therefore respectfully requests withdrawal of the rejection thereof under 35 U.S.C. § 112.

#### **Rejection under 35 U.S.C. § 103(a)**

In the Office Action, beginning at page 4, Claims 1-6 were rejected under 35 U.S.C. § 103(a), as reciting subject matters that allegedly are obvious, and therefore allegedly unpatentable, over the disclosure of U.S. Patent No. 5,665,321, issued to Campbell *et al.* (“Campbell”) alone. Applicant respectfully requests reconsideration of this rejection.

This application describes methods embodying principles of the present application. As

discussed throughout this specification, there are two subsequent oxidizing and absorbing processes, using two separate and different catalysts, in different absorbing chambers. One catalyst is used to oxidize SO<sub>2</sub>, the other is used to oxidize CO and NO and absorb the resulting oxides. When the absorbing power of the catalysts diminishes, they are not replaced, but regenerated in a regeneration cycle. As the catalysts and the processes involved are different for the two absorbing chambers, the regeneration cycle has to be optimized to achieve the most effective regeneration of both catalysts. Such an optimized regeneration cycle is an aspect of the present invention.

Claim 1 relates to a method for operating a flue gas purification plant having a combination of steps including, *inter alia*, simultaneously oxidizing CO and NO in each absorber chamber with a first single catalyst in a first absorber, and absorbing the resulting NO<sub>2</sub> on the catalyst surface, oxidizing SO<sub>2</sub> with a second catalyst in a second absorber upstream of the first absorber, and absorbing the resulting SO<sub>3</sub> on the catalyst surface, successively regenerating the absorber chambers with a regeneration gas containing hydrogen, hydrogen compounds, or both, in regularly repeating regeneration cycles affecting all the absorber chambers, and selecting the regeneration time of the second absorber within each of said regeneration cycles to be long enough for regeneration of the second absorber.

The prior art, including *Campbell* and the known “SCONO<sub>x</sub>” and “SCOSO<sub>x</sub>” cycles, fails to disclose, describe, or fairly suggest a combination as recited in the pending claims.

*Campbell* discloses a process and apparatus for the reaction and absorption of gaseous air pollutants, which involves a one step/one element process and apparatus to remove nitrogen oxides, carbon monoxide, and sulfur oxides from the stack gases of a gas turbine plant. Using a combined catalyst/absorber, the nitrogen oxides are oxidized to nitrogen dioxide, the carbon monoxides are oxidized to carbon dioxide, and the sulfur dioxide is oxidized to sulfur trioxide (col. 2, lines 32-38). Furthermore, there is no regeneration process. When the catalyst absorber is spent or partially spent, it can be reactivated by removing and replacing the spent absorber and disposing of the spent absorber, which can be used as fertilizer etc. (col. 4, lines 32-38).

The known “SCONO<sub>x</sub>” and “SCOSO<sub>x</sub>” processes, while useful, have presented problems

in the regeneration times required for each cycle, as described in this specification. These known cycles do not include the differences between *Campbell* and the subject matters of the pending claims.

Thus, *Campbell* fails to disclose, describe, or suggest methods including oxidizing using separate catalysts, regeneration cycles, and the selection of the regeneration time of the second absorber as recited in the pending claims, and the known “SCONO<sub>x</sub>” and “SCOSO<sub>x</sub>” cycles do not make up for these deficiencies with respect to the subject matters of the pending claims.

For at least the foregoing reasons, Applicant respectfully submits that the subject matters of Claims 1-6, each taken as a whole, would not have been obvious to one of ordinary skill in the art at the time of Applicant's invention, are therefore not unpatentable under 35 U.S.C. § 103(a), and therefore respectfully requests withdrawal of the rejection thereof under 35 U.S.C. § 103(a).

### **Obviousness-type Double Patenting Rejection**

In the Office Action, beginning at page 5, Claims 1-6 were provisionally rejected under the judicially-created doctrine of obviousness-type double patenting as reciting subject matters that are allegedly not separately patentable over the subject matters recited in Claims 1-6 of U.S. Application No. 10/660,523 (“‘523 application”), by the inventor herein. Applicant respectfully requests reconsideration of this rejection.

Applicant files concurrently herewith a Terminal Disclaimer over the ‘523 application; the rejection is therefore moot.

For at least the foregoing reasons, Applicant respectfully submits that the subject matters of Claims 1-6 are separately patentable over the subject matters of Claims 1-6 in the ‘523 application, and therefore respectfully requests withdrawal of the rejection thereof.

### **Conclusion**

Applicant respectfully submits that the present patent application is in condition for allowance. An early indication of the allowability of this patent application is therefore respectfully solicited.

If Mr. Johnson believes that a telephone conference with the undersigned would expedite passage of this patent application to issue, he is invited to call on the number below.

It is not believed that extensions of time are required, beyond those that may otherwise be provided for in accompanying documents. If, however, additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned under 37 C.F.R. § 1.136(a), and the Commissioner is hereby authorized to charge fees necessitated by this paper, and to credit all refunds and overpayments, to our Deposit Account 50-2821.

Respectfully submitted,

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